

ABSTRACT OF THE DISCLOSURE

To evaporatively cool fuel cells, the pressure in steam carrying channels on one side of a hydrophobic porous liquid/vapor barrier layer disposed between adjacent fuel
5 cells is reduced to below the vapor pressure of liquid water passing through liquid water carrying channels on the other side of the barrier layer, such as by using a vacuum pump. This causes some of the liquid water to boil and change to steam. The steam passes through the
10 barrier layer into the steam channels and is carried out of the cells. The operating temperature of the fuel cell is adjusted by controlling the pressure within the steam channels, such as by controlling the amount of heat removed from the steam after it leaves the steam
15 channels.